Ho**w this investigation fits within the “Concept and Lesson Map”:**

**Overview for Unit 4: Pill Bugs and Sow Bugs**

* Observe and compare the structures and behavior of pill bugs and sow bugs.
* Observe several kinds of animals living together in a terrarium habitat.
* Observe and describe the environment in which pill bugs and sow bugs survive.

**Overarching question(s) for this whole investigation:**

* What are isopods?
* How are pill bugs and sow bugs different?
* How do isopods move?
* What do animals need?

**Attending to “How People Learn”**

**How People Learn Key Finding #1: Preconceptions**

Eliciting Student Ideas:

* Have students draw their predictions of pill or sow bug body parts in the top portion of the Prediction/Observation Journal Page prior to observing pill or sow bugs.

Common Student Preconceptions:

* “...to many students animals are only the large land mammals, such as those found as pets, on farms, or in zoos...reasons for identifying something as an animal included: four legs, large size, land habitat, fur and noise production.” (Driver, 1994, 22)
* “People are not animals. Animals are four footed and furry. Animals are wild, pets, or farm animals. Animals are large. Animals live on land.”
* “...most 7 year-olds can assign organisms to groups of their own choice, but their groups are of differing status and are mutually exclusive rather than hierarchical. in assigning organisms, young children could use only two groups at the same time...”(Driver,1994, 24)

**How People Learn Key Finding #2: Facts/Concepts/Knowledge**

WA State Content Standards “Science Domains” (EALR 4)

* K-1 LS1B All plants and animals have various external parts.
* K-1 LS1D Different animals use their body parts in different ways to see, hear, grasp objects, and move from place to place.

WA State Science Standards “Crosscutting Concepts and Abilities” (EALRs 1-3)

* K-1 SYSA Living and nonliving things are made of parts. People give names to the parts that are different from the name of the whole object, plant, or animal.
* K-1 INQD Scientists report on their *investigation*s to other scientists, using drawings and words.

Key Understandings For the Teacher:

* Read pages 4-7 of FOSS Animals 2x2 Investigation 3.
* On page 7 is a list of vocabulary that could be used to describe the isopods.
* Students begin by investigating two kinds of isopods (sow bugs and pill bugs). They draw upon knowledge and experience gained from the previous activities to investigate the structures and behavior of isopods.
* Students will compare the isopods and sort them into two groups based on the different structures and behavior they observe.

**How People Learn Key Finding #3: Metacognition**

Metacognition: How did my thinking change? What caused the change? How did I come to believe this?

Using the Prediction/Observation Journal Page for pill or sow bugs, have students draw their predictions of pill or sow body parts in the top section prior to observing the pill or sow. Have students draw their observations of pill or sow body parts in the bottom observation section of the Prediction/Observation Journal Page for pill or sow.

**Suggested Assessments for Student Understanding:**

Refer to Eliciting Student Ideas sections of this document.

**Additional Information**

**Materials and Student Management**

* Use student sheet #30 (home/school connection page) to have students progressively add animals to the picture of the environments after investigating each animal. Students color and cut out the picture of the animals, then glue them to the picture in the correct environment for that animal. This is a page in their science notebook that students’ will refer to over and over. This sheet could also be re-done at the end of the unit as an assessment piece.
* Try to keep all living organisms that have already been used in previous investigations available in the classroom for continued observation, comparing and contrasting.
* Understanding about the definition of ‘environment’ should be included in making of the paper aquariums, Part 3 of Investigation 1. Observations of the characteristics of this particular environment should be the focus of conversation.

**Timing Considerations**

* Order live organisms ahead of date needed. Check with distributor for time needed for delivery, often this is 3-6 weeks.